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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,151	09/23/2003	Robert C. Elliott	LAMA121751	2985

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EXAMINER	
KARIKARI, KWASI	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/669,151	ELLIOTT ET AL.	
	Examiner	Art Unit	
	Kwasi Karikari	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/15/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 11/15/2004 is in compliance with the provision of 37 CFR 1.97, has been considered by the Examiner, and made of record in the application file.

Claim Objections

2. Claim 7 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claims cannot serve as the basis for another multiple dependent claims. See MPEP § 608.01(n). Accordingly, claim 7 is not being further treated on the merits.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Razoumov et al. (U.S 20050129063), (hereinafter Razoumov).

Regarding **claims 1 and 8,** Razoumov discloses a wireless communication system (see Figs 1-3) adapted for packet data transmissions (= scheduling and transmission of packets, see Pars [0009-10]), a method comprising:

receiving a channel state indicator CSI for a mobile station (= receiving rate request indicator (RRI) /channel condition, see Pars. [0008 and 0016]; whereby DRR is being associated with the "CSI");

calculating a projected average throughput value (R) for each mobile station as a function of the CSI (= projected throughput of a given mobile user, see Par. [0016]);

calculating the average value (Ra.v) of the projected average throughput values for at least a portion of the pool of mobile stations (= projected throughput of a given mobile user and the determination of pool of active users k, where k is subset of N user, see Pars. [0016, 0021-23]) and

scheduling transmissions to the mobile stations according to the priority functions (= scheduling and Priority function PF, see Pars. [0016, 0019, 0023 and 0023]); but fails specifically to disclose the determination of a tuning parameter ∞ in the range of 0 to 1 inclusive and the calculation of the PF as: "CSI [(∞/ R)+(1- ∞)/ Rav)]"

However, Razoumov does mention an adjusting parameters such as the adjustment of data rate; power control; time constant of a smoothing filter; data modulation and fairness criteria directed by Qos (see Pars. [0016, 0021, 0023 and0032]). Further more, Razoumov mathematically discusses similar/equivalent calculation for Priority function as related to DRR and time constant of a smoothing filter used for scheduling in equations 1, 2 & 4 (Pars. [0019 -23 and 0029-32]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 2,** as recited in claim 1, Razoumov fails specifically to discloses the method, where the calculation of Priority function as "CSI [(∞/ R)+(1- ∞)/ Rav)]".

However, Razoumov does mention an adjusting parameters such as the adjustment of data rate; power control; time constant of a smoothing filter; data modulation and fairness criteria directed by Qos (see Pars. [0016, 0021, 0023 and0032]). Further more, Razoumov mathematically discusses similar/equivalent calculation for Priority function as related to DRR and time constant of a smoothing filter used for scheduling in equations 1, 2 & 4 (Pars. [0019 -23 and 0029-32]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 3,** as recited in claim 1, Razoumov discloses the method, wherein each of the channel state indicators is a requested data rate received from one of the plurality of mobile stations (= DRR received from users, see Par. [0020]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly

allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 4,** as recited in claim 1, Razoumov discloses the method, wherein each of the channel state indicators is a carrier-to-interference ratio received from one of the plurality of mobile stations (= RRI is associated with Carrier -to- interference information, see Par. [0016]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 5,** as recited in claim 1, Razoumov discloses that the method, further comprising transmitting data to the plurality of mobile stations in response to scheduling decisions (see Pars. [0008-9]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 6,** as recited in claim 1, Razoumov discloses that the method, further

comprising updating the priority functions of scheduled mobile stations as a function of the channel state indicator (see Par. [0026]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 9,** as recited in claim 8, Razoumov discloses that the method, further comprising updating a second subset of users within the section of the pool of users different from the first subset of users using a nominal data rate of zero (see Pars. [0010, and 0024-25]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 10,** as recited in claim 8, Razoumov discloses that the method, wherein the section of the pool of users are users having data pending (see Par. [0010]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users

(see Razoumov, Pars. [0006-10]).

Regarding **claim 11,** as recited in claim 10, Razoumov discloses the method, wherein the first subset of users comprises one user (see Par. [0021]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claims 12 and 14**, Razoumov discloses a base station apparatus (see Figs 1-3), comprising:

a processor (see Par. [0029]), and;

a memory module coupled to the processor, the memory module operative to store a plurality of computer readable instructions (= calculation and scheduling functions, see Pars. [0008-10 and 0035]), comprising:

a first set of instructions to obtain channel state indicators CSI for the mobile stations (= receiving rate request indicator (RRI) /channel condition, see Pars. [0008 and 0016]; whereby DRR is being associated with the "CSI");

a third set of instructions to calculate the projected average throughput value (R) for each mobile station as a function of the channel state indicator for that mobile (= projected throughput of a given mobile user, see Par. [0016]);

a fourth set of instructions to calculate the average value (R) of the projected average throughput values (Rav) (= projected throughput of a given mobile user and the determination of pool of active users k, where k is subset of N user, see Pars. [0016, 0021-23];and

a sixth set of instructions to schedule transmissions to the mobile stations according to the priority functions (= scheduling and Priority function PF, see Pars. [0016, 0019, 0023 and 0023]; but fails to discloses a second set of instructions to determine the value of a tuning parameter ∞ within the range of 0 to 1 inclusive; and a fifth set of instructions to calculate a priority function for the mobile stations, wherein the priority function is a function of "CSI [(∞/ R)+(1- ∞)/ Rav)]".

However, Razoumov does mention an adjusting parameters such as the adjustment of data rate; power control; time constant of a smoothing filter; data modulation and fairness criteria directed by Qos (see Pars. [0016, 0021, 0023 and0032]). Further more, Razoumov mathematically discusses similar/equivalent calculation for Priority function as related to DRR and time constant of a smoothing filter used for scheduling in equations 1, 2 & 4 (Pars. [0019 -23 and 0029-32]).
It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 13,** as recited in claim 12, Razoumov fails specifically to discloses the instructions, where the calculation of Priority function is defined as:

"CSI [(∞/ R)+(1- ∞)/ Rav)]".

However, Razoumov does mention an adjusting parameters such as the adjustment of data rate; power control; time constant of a smoothing filter; data modulation and fairness criteria directed by Qos (see Pars. [0016, 0021, 0023 and0032]). Further more, Razoumov mathematically discusses similar/equivalent calculation for Priority function as related to DRR and time constant of a smoothing filter used for scheduling in equations 1, 2 & 4 (Pars. [0019 -23 and 0029-32]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 15,** as recited in claim 14, Razouomov discloses projected average throughput for the mobile station and the average of the projected average throughputs in determining the scheduling of transmissions (see Pars. [0009, 0016, 0021, 0023]); but fails specifically to disclose the tuning parameter ∞ as related to weighing.

However, Razoumov does mention an adjusting parameters such as the adjustment of data rate; power control; time constant of a smoothing filter; data modulation and fairness criteria directed by Qos (see Pars. [0016, 0021, 0023 and0032]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 16,** as recited in claim 15, Razouomov discloses throughputs in determining the scheduling of transmissions (see Pars. [0009, 0016, 0021, 0023]); but fails specifically to disclose the tuning parameter ∞ .

However, Razoumov does mention an adjusting parameters such as the adjustment of data rate; power control; time constant of a smoothing filter; data modulation and fairness criteria directed by Qos (see Pars. [0016, 0021, 0023 and0032]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 17,** as recited in claim 14, Razoumov fails specifically to discloses the instructions, where the calculation of Priority function is defined as:
"CSI [(∞/ R)+(1- ∞)/ Rav)]".

However, Razoumov does mention an adjusting parameters such as the adjustment of data rate; power control; time constant of a smoothing filter; data

modulation and fairness criteria directed by Qos (see Pars. [0016, 0021, 0023 and0032]). Further more, Razoumov mathematically discusses similar/equivalent calculation for Priority function as related to DRR and time constant of a smoothing filter used for scheduling in equations 1, 2 & 4 (Pars. [0019 -23 and 0029-32]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 18,** as recited in claim 17, Razoumov discloses the method in which scheduling transmissions to the plural mobile stations comprises: scheduling a first subset of the mobile stations who have data transmissions pending; and updating the priority functions of the plural mobile stations (see Pars. [0010, 0021 and 0026].

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Regarding **claim 19,** as recited in claim 18, Razouomov discloses the claimed limitations (see Pars. [0009, 0016, 0021, 0023]); but fails specifically to disclose the tuning parameter ∞ .

However, Razoumov does mention an adjusting parameters such as the adjustment of data rate; power control; time constant of a smoothing filter; data modulation and fairness criteria directed by Qos (see Pars. [0016, 0021, 0023 and0032]).

It would therefore have been obvious to one of the ordinary skill in the art to utilize the teaching of Razoumov in achieving a scheduling system whereby a fairly allocation of channels leads to an optimization of transmission channels among users (see Razoumov, Pars. [0006-10]).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kimura (U.S. 20050226199 A1) teaches a transmission-band allotting apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwasi Karikari whose telephone number is 571-272-8566. The examiner can normally be reached on M-F (8 am - 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on 571-272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8566.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

for K.K.
Kwasi Karikari
Patent Examiner.

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